

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claim 1 has been amended for clarity.

The Examiner has rejected claims 1-10 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,251,492 to Tomie.

The Tomie patent discloses an optical recording medium, having a stack design with the following order of layers:

- substrate
- thermal insulator
- reflecting layer
- first dielectric layer
- recording layer
- second dielectric layer.

The light enters the stack from the second dielectric layer side and does not penetrate the thermal insulator which lies behind the reflecting layer. The intention of this arrangement is to protect the substrate, see page 3, lines 5 and 6. For this purpose, Tomie teaches to arrange a thermal insulator next to the substrate and consequently behind the reflecting layer with respect to the light incidence side.

As noted in MPEP §2131, it is well-founded that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.

1987). Further, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The Examiner has indicated that Tomie teaches the rewritable optical record carrier as claimed in claim 1.

Applicant believes that the Examiner is mistaken. In particular, based on the disclosure of page 6, lines 6-9 and 15, as well as on Figures 1 and 2, a mirror layer is arranged on the second dielectric layer side of the recording stack of layers and opposite the thermal barrier layer. Thus, in claim 1, the order of layers in the rewritable optical record carrier according to the present invention is:

- thermal barrier layer (insulator)
- first dielectric layer (I1)
- phase-change recording layer (PC)
- second dielectric layer (I2)
- mirror (reflecting) layer.

This stack design includes both, a CD- or DVD- rewritable stack design according to Fig. 1, whereby the thermal barrier layer is deposited onto the substrate, and a BD- rewritable stack design according to Fig. 2, whereby the mirror layer is deposited onto the substrate and the thermal barrier layer is covered by a cover

layer. In the former case, the light beam enters the stack through the transparent substrate and the transparent thermal barrier layer, while in the latter case, the light enters the stack through the transparent cover layer and the transparent barrier layer. In other words, in any case, the thermal barrier layer is deposited onto the recording stack at the light incidence side of the recording stack opposite the mirror layer.

The present invention adds a thermal barrier layer arranged adjacent to the first dielectric layer, i.e., opposite to the mirror layer. The effect is a reduction of the heat dissipation from the recording layer through the first dielectric layer to the substrate/cover layer. This, in turn, allows an improvement in the optical performance of the optical medium. For example, in case of a short wavelength BD-system, the numerical aperture is very high ($NA = 0.85$). Therefore, the effective light path through the first dielectric layer significantly varies. Different light paths cause a phase shift and hence, deterioration of the optical performance. Adding a thermal barrier layer between the first dielectric layer and the substrate/cover layer allows choosing the first dielectric layer as thin as possible, or in the sense of reflection minima, to choose as the first dielectric layer's thickness at the first amorphous reflection minimum ($m=1$) in order to enhance the optical contrast (see the specification on pages 2 and 3).

Accordingly, the object of the present invention is to provide a rewritable optical record carrier with a stack design which, at the same time, provides good optical properties and

sufficient thermal protection of the adjacent substrate or cover layer on the light incident side.

Although Tomie discloses a thermal insulator, Tomie does not teach how such a thermal layer can be used to enhance the optical performance.

Since Tomie avoids light penetrating the thermal insulator, no motivation could be expected from Tomie to improve the optical performance by an arrangement according to claim 1.

The Examiner now states "The upper dielectric layer (6 of Fig. 1) of Tomie as the thermal barrier layer and first dielectric layer of the claimed invention,...", and that Tomie teaches the claim limitation "a thermal barrier layer (6 of Fig. 1, Col 3 Lines 30-48) is arranged adjacent to said first dielectric layer opposite the mirror layer (Fig. 1, Col 4 Lines 47-51, Col 5 Lines 51-54 the first dielectric layer and the thermal barrier layer can be one and the same and made of the same material ZnS-SiO₂)".

Applicant submits that Tomie merely discloses that its thermal barrier layer and the first dielectric layer (actually the second dielectric layer in Tomie) may be made of the same material. However, contrary to the Examiner's statement, there is no disclosure or suggestion in Tomie that the first dielectric layer and a thermal barrier layer can or should be one and the same. This is merely speculation on the part of the Examiner unsupported by Tomie.

In view of the above, Applicant believes that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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